Habitat Management Resources

Kentucky Heritage Land Conservation Fund
375 Versailles Road, Frankfort, KY 40601
502-573-3080
http://heritageland.ky.gov

Agencies receiving land acquisition/management funding from the Kentucky Heritage Land Conservation Fund are expected to incorporate this information into their Final Resource Management Plans. This document covers the most basic habitat management issues that affect natural areas – they are not comprehensive, but intended to be a starting point for management considerations. Not every KHLCF project will address all of these issues, and some projects will address issues not touched upon in this document. Funding recipients are urged to contact the KHLCF office for assistance, not just during the planning process but any time any management issues arise.

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All internet links were current as of June 1, 2012.

Introduction to Habitat Management on KHLCF properties

In order to enhance stewardship of natural resources, the Kentucky Heritage Land Conservation Fund (KHLCF) has provided the following information for the management of habitat on properties that it funds. The KHLCF has funded a wide variety of projects, from wetlands along the Mississippi River to forests on Pine Mountain to urban greenbelts. Every site has its own unique features and challenges, but most face issues common to all natural areas. The resources presented here are intended to give managing agencies the resources they need to address these issues. There is a wealth of information available on managing natural areas; rather than "reinvent the wheel" this document will direct site managers to sources of information that are appropriate for managing KHLCF-funded properties.

The KHLCF provides funding for preserving and conserving natural areas that possess unique features such as:

1. Areas that are a habitat for rare and endangered species.
2. Areas important to migratory birds.
3. Areas that perform important natural functions subject to alteration or loss.
4. Areas to be preserved in their natural state for public use, outdoor recreation and education.

All Final Resource Management Plans should address the steps each site manager will take to maintain or improve the quality of these features. Generally, this will require some degree of active habitat management. The resources presented here will address features number 1 through 3 above. Feature number 4 is addressed in a separate guide, "Trail Management on KHLCF Properties", available from the KHLCF office.

NOTE: Any major modifications to KHLCF habitat management must go through a review process. Any plans that would include any of these modifications should be submitted to the KHLCF for review and approval.

Please adhere to this document. They have been developed for the overall benefit of the natural resources and easier long-term maintenance. They have been developed by natural resource professionals with decades of experience in natural areas. For questions and support regarding specific management issues, contact the KHLCF office.

NOTE: All KHLCF-funded sites are legally protected in perpetuity by the KHLCF through a conservation easements or MOA. Remember to consult this document and the most recently approved Final Resource Management Plan when making management decisions on any KHLCF site. For questions and support regarding management issues, please contact the KHLCF office.

Grassland Management

Many KHLCF properties have areas of pasture that may be suitable for conversion into a natural grassland or a stand of native warm-season grasses (NWSG). The basic difference is this: conversion to a natural grassland requires no planting but is slower, converting to a NWSG plot includes planting and is quicker but more expensive. Either type of area can provide habitat for a variety of wildlife species, including rare or declining songbirds and small game animals. In general the KHLCF supports the conversion of pastures into natural grasslands or NWSG plots for this reason; however, managing agencies must realize that both natural grasslands and NWSG plots do require long term maintenance or they will be overtaken with invasive species and shrubs/trees. Without planning for long-term maintenance, restoration may not be as cost-effective as reforestation.

Grassland Restoration Concepts

Every project begins as a concept. The planning and design process begins with the evaluation of a site by the managing agency in conjunction with the KHLCF, who must decide whether the concept has merit. Six (6) decisions must be made for every proposed restoration:

1. Is the restoration site large and contiguous enough to create sufficient habitat?

2. Is the restoration site in a floodplain or bottomland? If so, forest regeneration is more appropriate (see **Forest Management** section).

3. Will restoration and maintenance of the site negatively impact any other resource (i.e. creeks, rare species, etc)?

4. Can the restoration site be accessed by management equipment without creating undesirable access issues (i.e. ATV encroachment, etc)?

5. Can the restoration site be maintained without the spread of undesirable invasive species?

6. Will the managing agency be able to accept the long-term maintenance responsibility after all KHLCF funds are expended?

NOTE: Information regarding the location of protected, endangered or threatened plants, animals, and natural communities is essential for restoration planning. This information should be compiled through a biological inventory prior to any management activities. Planting of grasses/forbs should not take place near any natural grassland communities identified in the site biological inventory.

Natural Grassland Restoration

Converting a pasture into a natural grassland is not a quick process. Most pastures in Kentucky were converted to tall fescue in the 1950's; they are a thick mat of grass unusable by wildlife. Our native grasses, such as bluestem and Indian grass, grow in clumps and allows wildlife greater mobility and nesting structure. Research from Dr. Thomas G. Barnes at the University of Kentucky has shown that in many cases if the fescue is removed from these pastures using herbicides, native grasses and forbs present in the soil will grow back without replanting. This is perhaps the most cost-effective method of restoring a grassland, but it is very slow. In general, fescue should be sprayed in early April (using a tractor/boom sprayer) and again in October. The following spring other plants will begin to grow, but it is likely that they will be invasive species that will also require annual herbiciding. This rotation should be continued as needed. For specific recommendations to treat invasive species, including fescue, see the section on "Invasive Species" in this guide. As of August 1, 2011 the KDFWR web-site has extensive information on fescue eradication at http://fw.ky.gov/fescue.asp .

NOTE: These restored grasslands will be very bare for several seasons before grasses/forbs become established.

Native Warm Season Grass Plot Establishment

Establishing NWSG plots is very similar to restoring a natural grassland, however it involves the direct planting of seeds obtained from a commercial distributor. The advantage to this is much faster growth and ground coverage, the disadvantage is greater expense and the danger of spreading non-native seed in a natural area.

The best place to go for advice on planting NWSG plots is your Kentucky Department of Fish and Wildlife (KDFWR) district biologist; call 800-858-1549 for contact information. As of June 1, 2012 the KDFWR web-site has extensive information on NWSG planting at http://fw.ky.gov/native.asp .

NOTE: Many commercial NWSG mixes contain invasive species, such as Korean lespedeza. The KHLCF does not permit invasive species to be planted on properties it funds. Although the KHLCF does not recommend any commercial enterprises, a list of plant nurseries specializing in native Kentucky species may be found in this guide under "Planting Trees, Wildflowers, and Grasses". Before planting anything provide the KHLCF office with a list of species to be planted.

Management Considerations – Prescribed Fire

Before settlement, grasslands were naturally kept open through periodic fire, caused either by lightning or Native Americans. Without fire, grasslands will naturally become taken over by woody plants such as blackberries and cedar trees. Without proper management, a restored grassland or NWSG plot will become a shrubby thicket in ten years, and eventually a woodlot. In general, grassland management requires

conducting a prescribed fire every three or four years. Any HLCF site that attempts a grassland restoration must include a description of its long-term grassland management plan in its Final Resource Management Plan. The FRMP should contain the following:

- A general prescribed burn plan template.
- Identification of the burn participants (local fire department, Nature Conservancy staff, etc).
- Firebreak preparation plans (use of roads, creeks, trails, disked lines, etc).
- Fire equipment available (ATV's with water tanks, Fire Department brush trucks, etc).
- Planned burn rotation (entire field every four years, half the field every two years, etc)

As of June 1, 2012, extensive prescribed fire information is available at the web-sites of KDFWR at http://fw.ky.gov/burning.asp and the Kentucky Prescribed Fire Council at www.kyfire.org.

NOTE: Prescribed fire can be dangerous. The KHLCF office can assist you with any questions about prescribed fire during the planning process. The local KDFWR district biologist may also be helpful.

Management Considerations – Disking

In most cases, prescribed fire is the preferred method of grassland or NWSG plot maintenance. However, in a very few case strip-disking may be appropriate, such as very small plots or areas where fire is impractical due to proximity to structures.

As of August 1, 2011, extensive prescribed fire information is available at the KDFWR web-site at http://fw.ky.gov/stripdsk.asp **.**

NOTE: All equipment should be pressure washed prior to bringing it to the restoration site to prevent the spread of invasive species. This includes tractors, herbicide boom sprayers, and fire equipment.

NOTE: If you have a non-profit 501c3 in your area that will help you manage the property, you may be eligible for Farm Bill funding through the KDFWR/NRCS for longer-term management. Contact the KHLCF for more information.

Forest Management

Managing forests on KHLCF properties is quite a bit more "hands-off" than managing grasslands. By far the major issue in forest management is controlling invasive species, which will be addressed in the "Invasive Species" section. In fact some site managers have a tendency to "over-manage" their forested areas. Keep the following in mind when considering forested areas:

- Standing dead trees, or "snags", are extremely important as habitat for nesting birds and roosting bats, many of which are rare or endangered. They should generally not be felled. Where "hazard trees" exist (i.e. in imminent danger of falling on a trail, parking area, etc), felling by a qualified arborist may be permitted.

- Rotting logs and debris are similarly important to small animals, such as salamanders. The woods in an KHLCF site should never be "cleaned up".

- Hiking trails should always be designed for minimum upkeep and equipment. For more information see the KHLCF "Trail Management" document, available from the KHLCF office.

- In general, forest fires are beneficial to forest ecosystems. Existing fire-breaks, such as creeks and trails, should be used to stop fires whenever possible instead of using heavy equipment. Where constructed firebreaks are unavoidable they should be designed by qualified personnel (i.e. Kentucky Prescribed Fire Council certified, etc).

- Reforestation should be allowed to progress naturally if possible. If trees are to be planted the KHLCF should be provided with a list of species prior to planting. Only native species of trees or flowers should ever be planted on a KHLCF site.

- Riparian areas (creeks, rivers, etc) should remain forested as far up the banks as possible. A minimum of 50 forested feet on slope of 15% or less and 110 forested feet with a slope greater than 15% is recommended. Trees are important for soil stabilization and regulation of stream temperatures for aquatic species.

NOTE: KHLCF sites are purchased to protect natural processes, conserve habitat for native Kentucky species, and provide passive outdoor recreation. It is not necessary to implement forest management practices designed to increase timber value.

Invasive Species Management

Non-native invasive species are the most significant threat to the integrity of natural areas. The KHLCF encourages managing agencies to spend a significant amount of management efforts towards addressing invasive species. Eradicating invasive species completely may be impossible, particularly on a large site, so it is important to set realistic goals to protect the most significant areas on each KHLCF site. Each final Resource Management Plan should include an invasive species management plan.

Prioritizing efforts

Since eradicating all invasive species is difficult, plans should include a prioritization of control efforts. The following order is recommended:

1. Invasive species threatening any rare or endangered species or habitats.

2. Invasive species that are just becoming established (i.e. catching an invasion early, before it has done much damage).

3. Invasive species threatening any significant cultural areas.

4. Invasive species in any high traffic areas, such as trails or overlooks.

5. Invasive species that have been established for a long time (i.e. a highly degraded area, most of the damage has been done and restoration efforts will be required).

Identifying Invasive Species

Every biological inventory should contain a list of invasive species. To learn basic identification, the easiest thing for non-botanists is to take this list and search for the species names on these web-sites:

- The Natural Resource Conservation Service Plant Database: http://plants.usda.gov

- The Center for Invasive Species and Ecosystem Health: http://www.invasive.org/

- Field Guide for the Identification of Invasive Plants of Southern Forests: http://www.srs.fs.fed.us/pubs/gtr/gtr_srs119.pdf

Some invasive species are more common in different part of Kentucky; however, according to the Kentucky Exotic Pest Plant Council (http://www.se-eppc.org/ky/), the following species pose the greatest threat to natural areas. If any of them appear in the biological inventory of a KHLCF site their management and control should be a priority.

1. Severe Threat: Exotic plant species which possess characteristics of invasive species and spread easily into native plant communities and displace native vegetation; includes species which are or could become widespread in Kentucky.

Ailanthus altissima	tree-of-heaven
Alliaria petiolata	garlic mustard
Carduus nutans	musk thistle
Celastrus orbiculata	oriental bittersweet
Conium maculatum	poison hemlock
Coronilla varia	crown vetch
Dioscorea oppositifolia	Chinese yam
Elaeagnus umbellate	autumn olive
Euonymus alatus	winged euonymus, burningbush
Euonymus fortune	winter creeper
Festuca arundinacea (=Lolium arundinaceum)	Kentucky 31 fescue
Lespedeza cuneata	sericea lespedeza
Ligustrum sinense, L. vulgare	Privet
Lonicera japonica	Japanese honeysuckle
Lonicera maackii	amur/bush honeysuckle
Lythrum salicaria	purple loosestrife
Melilotus alba	white sweet clover
Melilotus officinalis	yellow sweet clover
Microstegium vimineum	Japanese grass
Miscanthus sinensis	Chinese silver grass
Phragmites australis	common reed
Polygonum cuspidatum	Japanese knotweed
Pueraria lobata	kudzu
Rosa multiflora	multiflora rose
Sorghum halapense	Johnson grass
Stellaria media	chickweed

2. Significant Threat: Exotic plant species which possess some invasive characteristics but have less impact on native plant communities; may have the capacity to invade natural communities along disturbance corridors, or to spread from stands in disturbed sites into undisturbed areas, but have fewer characteristics of invasive species than #1 rank.

Akebia quinata	akebia
Albizia julibrissin	mimosa
Arthraxon hispidus	hairy jointgrass
Arctium minus	common burdock
Berberis thunbergii	Japanese barberry
Bromus inermis	smooth bromegrass
Centaurea biebersteinii	spotted knapweed
Chrysanthemum leucanthemum	ox-eye daisy
Cirsium arvense	Canada thistle
Daucus carota	Queen Anne's lace
Dipsacus sylvestris	common teasel
Eleusine indica	goose grass
Glechoma hederacea	ground ivy
Hedera helix	English ivy
Ipomoea hederacea	ivy-leafed morning-glory
Ipomoea purpurea	purple morning-glory
Lespedeza bicolor	bicolor lespedeza
Lespedeza stipulacea (=Kummerowia)	Korean lespedeza
Lespedeza striata (= Kummerowia)	Kobe lespedeza
Mentha piperata	mint
Morus alba	white mulberry
Mosla dianthera	miniature beefsteak
Ornithogalum umbellatum	star-of-Bethlehem
Paulownia tomentosa	Chinese empress-tree
Poa pratensis	bluegrass
Polygonum cespitosum	bunchy knotweed
Polygonum persicaria	lady's thumb
Populus alba	white poplar
Rorrippa nasturtium-aquaticum	water cress
Setaria faberi	giant foxtail
Setaria viridis	green foxtail
Spiraea japonica	Japanese spiraea
Vinca minor	lesser periwinkle

Control Techniques

Invasive species management is the subject of extensive ongoing research nationwide, including the University of Kentucky. New techniques and herbicides are developed regularly. In general, the KHLCF supports techniques which are the most efficient and cost-effective. That usually requires the use of herbicides; some plants may be removed manually but this typically is less effective because some of the root system is left behind, as well as being slow and difficult. However, since every person using herbicides on a KHLCF property is legally required to obtain a state pesticide license, it is sometimes practical to have volunteers (or prison inmates) manually pull plants. The following techniques are the most commonly used:

- Chemical removal (herbicide): generally the most effective and efficient, usually the preferred method on most KHLCF properties. Make sure to follow the label rates and instructions, and use the smallest amount of herbicide that has been proven effective as indicated by the resources listed below. There are several application methods, including foliar application (applied directly to leaf during the growing season), cut-stump (applying herbicide directly to a stump within 30 minutes of cutting), and basal bark (applying directly to the trunk of a tree/shrub with thin-bark.) USUALLY MOST EFFECTIVE

- Manual removal (hand-pulling): effective for very few plants, such as garlic mustard. Care must be given to remove all of the roots, and it must be done before the plant goes to seed (generally early spring). Only practical in lightly invaded areas, or when large groups of volunteers (or inmates) are available to help but do not have pesticide licenses. SOMETIMES MOST EFFECTIVE

- Mechanical removal (stump-prying): occasionally useful on some shrubs such as bush honeysuckle where chemical use is not practical. Only useful on flat ground due to soil disturbance. Examples of equipment include the "Extractigator" (http://www.extractigator.com/) and the "Weed Wrench" (http://www.weedwrench.com/). RARELY MOST EFFECTIVE

- Mechanical removal (weed-eating/mowing): generally ineffective and expensive, not usually recommended. One exception is Japanese stiltgrass (or microstegium) which may be effectively weed-eated before it goes to seed in late summer. RARELY MOST EFFECTIVE

NOTE: As of June 1, 2012, information on obtaining a Kentucky Pesticide Applicator license (which is required for *anyone* to apply herbicides on government property) may be found online at http://www.kyagr.com/consumer/envsvs/testing/schedule.htm. The KHLCF encourages every site to have at least one certified pesticide applicator.

For basic application techniques, see the following on-line resources:

- General Principles for Controlling Nonnative Invasive Plants
  http://www.invasive.org/eastern/srs/control.html
- Herbicide Advice for Homeowners
  http://www.se-eppc.org/pubs/ww/HerbicideAdviceFall2003.pdf

Control Manuals

The KHLCF recommends the following invasive control manuals currently available on the internet as of August 1, 2011.

- Kentucky Exotic Pest Plant Council Invasive Plant Cards
  http://www.se-eppc.org/pubs/cards.cfm

- Southeast Exotic Pest Plant Council Invasive Plant Manual
  http://www.se-eppc.org/manual/index.html

- Invasive Plants of the Eastern United States: Identification and Control
  http://www.invasive.org/eastern/

- Nonnative Invasive Plants of Southern Forests: Identification and Control
  http://www.invasive.org/eastern/srs/

NOTE: Most herbicides are effective any time the temperature is above 50 degrees, and the weather is dry with little wind. In Kentucky, many days from November through February fall into this category. The KHLCF encourages as much invasive species control work as possible be conducted during this dormant period to avoid harming desirable species.

NOTE: Invasive species control is usually the most important habitat management activity on a KHLCF site – it is also very labor intensive. Site managers are encouraged to use inmates from their local or regional jail for basic invasive control. In some cases, the use of professional restoration contractors may be warranted. Site should contact the KHLCF staff biologist for management recommendations.

While the KHLCF does not recommend any particular commercial outlets, the following contractors specialize in habitat management and invasive species control in natural areas. Although some landscaping firms are capable of some projects, most do not have the training or experience to work in natural areas. All web-sites were current on June 1, 2012.

Habitat management contractors in Kentucky (invasive species control, etc) - compiled by KHLCF, 9/1/2011						
** THE KHLCF DOES NOT MAKE RECOMMENDATIONS ** IF YOUR FIRM WOULD LIKE TO BE ADDED TO THIS LIST CONTACT THE KHLCF OFFICE**						
Company name:	**Address:**	**E-mail:**	**Phone:**	**Web-site:**	**Counties worked:**	**Specialties, etc:**
EcoGro	PO BOX 22273 Lexington, KY 40502	Jim@ecogro.net	859-231-0500	www.ecogro.net	Any	Ecological stewardship of wetland and upland species
Eco-Tech Consultants	11321 Decimal Dr. Louisville, KY 40299	cchandler@ecotechinc.com	(502)259-0467	http://ecotechinc.com/	Anyy	Habitat management
Invasive Plant Control, Inc.	PO Box 50556 Nashville, TN 37205	steve@ipc-inc.org	615-385-4319	www.invasiveplantcontrol.com	Any	
Mammoth Cave Resource Conservation and Development Area Council, Inc.	P.O. Box 73, 41 Mammoth Cave Ave., Park City, KY 42160	myrisamcrcd@gmail.com	270-646-8993	www.mammothcavercd.org	South Central Kentucky	Invasive trees, shrubs, and vines; trail construction; sensitive areas
NativeScapes, Inc.	13020 Mitchell Hill Rd Fairdale, KY 40118-9475	nativescapes@insightbb.com	502-749-2104 (O) 502-749-2104 (Fax) 502-235-8068 (cell)		Any	Comprehensive natural areas management, including invasive species control and trail design
Natural Resources and Property Management	423 Eline Ave. Louisville, KY 40207	greg.stephens50@att.net	502 435-2497		Central Kentucky	Small jobs
Skybax Ecological Services, LLC	PO Box 1093, Berea, KY 40403	skybax@windstream.net	859-302-2897		Any	Forest management
Third Rock Consultants	2526 Regency Road, Suite 180, Lexington, KY 40503	cbloyd@thirdrockconsultants.com	859-977-2000	http://www.thirdrockconsultants.com/	Any	All forest and aquatic systems

Planting Trees, Wildflowers, or Grasses

There is rarely a need to plant anything in a natural area. However in some cases restoration work may be appropriate. To avoid the spread of invasive species it is important to only plant species native to your area. Remember, just because something is called a "wildflower" does not mean it actually grows wild in your area – it may be wild in South Dakota or England, not Kentucky.

To learn more about Kentucky's native plants and for a current list of native plant nurseries in Kentucky go to the following site:

- The Kentucky Native Plant Society at http://knps.org/

While the KHLCF does not recommend any particular commercial outlets, the following plant nurseries specialize in plants native to the region. Other nurseries may carry native plants as well; always provide the KHLCF as species list **prior** to planting. All web-sites were current on June 1, 2012.

- Roundstone Native Seed & Nursery
  9764 Raider Hollow Rd., Union, KY 42784
  270-531-5853 or 270-531-3034 https://www.roundstoneseed.com/
  - specializes in grassland/NWSG plot species

- Kentucky Division of Forestry
  Native trees and shrubs
  627 Comanche Trail, Frankfort, KY 40601
  502-564-4496
  http://forestry.ky.gov/statenurseriesandtreeseedlings/Pages/default.aspx
  - native tree seedlings for restoration projects

- Dropseed Nursery
  1205 S. Buckeye Lane, Goshen, KY 40026
  502-439-9033 www.dropseednursery.com

- Shooting Star Nursery
  160 Soards Road, Georgetown, KY 40324
  502-867-7979 http://shootingstarnursery.com/catalog/

- Salato Native Plant Program
  1 Sportsman's Lane, Frankfort, KY 40601
  502-564-5280

- Chrysalis Natural Landscapes
  680 Mt. Vernon Ridge Road, Frankfort, KY 40601
  502-682-8279
  http://www.chrysalisnaturallandscapes.com/Chrysalis/Welcome.html

- Habitats Native Plant Nursery, LLC
  PO Box 265, Silver Grove, KY 41085
  859-442-9414 http://www.habitatsnursery.org/

- Highland Moore
  226 Shady Lane, Midway, KY 40347
  859-509-2719 http://www.highlandmoor.com/kynatives.htm

Erosion Issues

Erosion issues commonly affect properties with ponds, lakes, or creeks. As a general rule, the best solution to water issues is to allow vegetation to absorb most of the water. In some cases simply planting native trees may be appropriate, particularly in a riparian area. In other case, planting non-invasive annual rye or winter wheat may be needed until enough of an organic layer is created for natural plant regeneration to begin.

NOTE: Many of the plant species common planted for erosion control on roadways are highly invasive and not appropriate for KHLCF sites. Unapproved species include crown vetch and fescue, among others. See the section of this document on "Planting Trees, Wildflowers, and Grasses."

It is fairly common for the dam in a pond or lake to fail, allowing water to cut into the ground and create an eroded channel. Very often a simple "debris dam" **will** fix the problem – cut fairly large red-cedar branches from nearby and pack them tightly in the channel created by the failing dam. This debris will soon catch silt from the pond and fill in the problem channel. This process may need to be repeated seasonally. Take care not to create unwanted access by cutting cedars too close to a trail or boundary.

As erosional problems are often complex and site specific, the best course of action is to contact your county's Natural Resource Conservation Service office for advice. As of August 1, 2011, the most current contact information for Kentucky can be found at the web-site below, just search for your county:

- District Conservationists, USDA NRCS
  http://offices.sc.egov.usda.gov/locator/app?agency=nrcs
  NOTE: Kentucky is divided into East and West Regions on this map.

NOTE: The KHLCF does not generally support the use of plastic "erosion mats" as they have a tendency to trap wildlife. Also, in many cases heavy equipment is used unnecessarily – make sure the method of fixing the problem doesn't create greater problems (unwanted access, invasive species, etc.)

Wildlife Management

Good natural areas management will result in good wildlife habitat. In other words, your wildlife populations should do well if you properly manage your grasslands and forests, eradicate invasive species, and only plant native species.

As a general rule, remember that the best way to improve wildlife habitat is to acquire more conservation lands – when it comes to wildlife habitat, bigger is better. Large blocks of forest are better than fragmented ones, more forested area around creeks or rivers is better than less, large grasslands are better than small ones.

Artificial Habitat

There are a few additional things you can do to target wildlife habitat improvement as part of an educational program.

- Build (or buy) bat houses:
  http://www.biology.eku.edu/bats/bathouse.htm
  - Kentucky has several bats that are Federally endangered, and the rest are likely to soon follow, due to a disease known as "White Nose Syndrome" (http://www.fws.gov/WhiteNoseSyndrome/).

- Build birdhouses:
  http://library.fws.gov/Bird_Publications/house.html
  - Different bird species require house of different sizes and placements.

- Plant a butterfly garden:
  http://www.ca.uky.edu/agc/pubs/for/for98/for98.pdf
  http://www.ca.uky.edu/entomology/entfacts/ef006.asp
  - Remember to only plant native Kentucky species.

Kentucky Wildlife

It is an unfortunate fact that many Kentuckians know more about wildlife in other parts of the world than they do about the ones in their own county. Each KHLCF biological inventory will contain a list of wildlife species found on each site. Here are a few sources of additional information on Kentucky species:

- Frogs and toads of Kentucky:
  http://bioweb.wku.edu/froglogger/

- Salamanders of Kentucky:
  http://biodiversity.wku.edu/salamanders/

- Common mammals of Kentucky:
  http://campus.murraystate.edu/academic/faculty/howard.whiteman/Field/mammals/mammallink.html

- Birds of Kentucky:
  http://www.biology.eku.edu/kos/birdlist.htm

- Snakes of Kentucky
  http://fw.ky.gov/pdf/kysnakebook.pdf

NOTE: KHLCF properties are intended to provide habitat for all native Kentucky species – including snakes. No wild animal should be killed gratuitously on any KHLCF site. Some KHLCF sites do permit legal hunting as permitted in the site final Resource Management Plan.

Rare Species Information

If the biological inventory for a KHLCF site indicates the presence of any rare species – Federally listed by the US Fish and Wildlife Service (USFWS) or state listed by the Kentucky State Nature Preserves Commission (KSNPC) - the site manager should work with the KHLCF biologist to determine the best management practices for that area.

For more information on Kentucky's rare species:

- USFWS – Federally listed
  http://ecos.fws.gov/tess_public/pub/stateListingIndividual.jsp?state=KY&status=listed

- KSNPC – State listed
  http://naturepreserves.ky.gov/pubs/Pages/reports.aspx

Conclusion and Resources

These habitat management resources, paired with the KHLCF Trail Management document, are an attempt to assist KHLCF funding recipients in creating their final Resource Management Plans and conduct long-term site management. Not every KHLCF project will address all of these issues, and some projects will address issues not touched upon here. Funding recipients are urged to contact the KHLCF office for assistance, not just during the planning process but any time any management issues arise.

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Kentucky Heritage Land Conservation Fund
375 Versailles Road, Frankfort, KY 40601
zeb.weese@ky.gov 502-573-3080 http://heritageland.ky.gov

Other helpful local resources include:

- Kentucky Department of Fish and Wildlife Resources District Biologist
  - http://fw.ky.gov/navigation.aspx?cid=200 or call 1-800-858-1549 with your county name and they will give you the contact info for your county. If you have a non-profit 501c3 in your area that will help you manage the property, you may be eligible for Farm Bill funding through the KDFWR.

- Kentucky Division of Forestry District Forester
  - http://forestry.ky.gov/divisionoffices/Pages/default.aspx

- Natural Resource Conservation Service District Conservationists
  - http://offices.sc.egov.usda.gov/locator/app?agency=nrcs

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